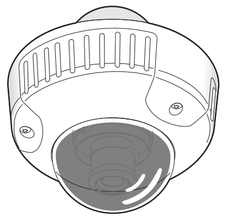


Panasonic

Color CCTV Camera Operating Instructions

Model No. WV-CW244F
WV-CW244S

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

N0803-1093 3TR001693BAA Printed in Japan

CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

SA 1965

The lightning flash with arrowhead symbol, within an equilateral triangle, is interned to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

SA 1966

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

For U.S.A

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

For Canada

This Class A digital apparatus complies with canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

The serial number of this product may be found on the top of the unit.
You should note the serial number of this unit in the space provided and retain this instruction as a permanent record of your purchase to aid identification in the event of theft.

Model No._____

Serial No._____

WARNING: To prevent fire or electric shock hazard, do not expose this appliance to rain or moisture.
The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

PRECAUTIONS

1. This product should be installed and connected by qualified service personnel or system installers in conformity with NEC.
2. Use a class 2 power source supplying 12 V DC or 24 V AC.
3. To prevent fire or electric shock hazard, use a UL listed cable (VW-1, style 1007) to connect the power supply to the camera.
4. Be sure to use a ceiling board/wall having enough strength to support this camera.
5. **Handle the camera with care.**
   Do not abuse the camera. Avoid striking, shaking, etc. The camera could be damaged by improper handling or storage.
6. **Do not use strong or abrasive detergents.**
   Use a dry cloth to clean the camera body when dirty.
   In case the dirt is hard to remove, use a mild detergent and wipe gently. Afterwards, wipe off the remaining detergent with a dry cloth.
7. **Clean the lens faceplate with care.**
   Do not clean the lens with strong or abrasive detergents. Use lens tissue or a cotton tipped applicator and ethanol.
8. **Never face the camera towards the sun.**
   Do not aim the camera at bright objects. Whether the camera is in use or not, never aim it at the sun or other extremely bright objects. Otherwise, blooming or smear may be caused.
9. **Do not operate the camera beyond its specifications.**
   Use the camera under conditions where temperature is between −10 °C to +50 °C (14 °F to 122 °F), and humidity is below 90 %. The input power source is 24 V AC or 12 V DC.
10. Use a monitor whose resolution is at least equal to that of the camera.

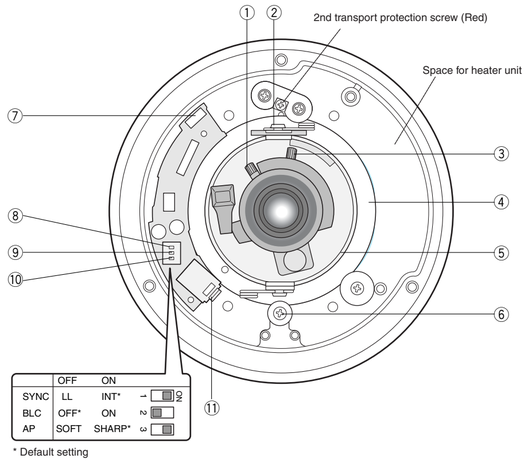
PREFACE

The WV-CW244 series is a 1/3" CCD color camera designed for use in a video surveillance system. The camera features a high picture quality thanks to the use of digital signal processing LSIs, and easy installation.

FEATURES

- Mounting method: Flash mounting/WV-CW244F, Surface mounting/WV-CW244S
- Signal processing: Automatic Light Control (ALC), Automatic Gain Control (AGC), Automatic Tracing White Balance (ATW), etc.
- Synchronization: Internal, Line-Lock (only 24 V AC), and Multiplexed Vertical Drive (VD2)
- Minimum illumination: 2.4 lx (0.24 foot-candle) at WIDE
- Signal-to-noise ratio: 50 dB (Equivalent to AGC OFF)
- Horizontal resolution: 480 TV lines
- Optional heater unit available for the camera used at temperatures between –10 °C and –30 °C (14°F and –22°F).

MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS



① **Focus lock lever**
Fixes the focus position after adjusting.

② **Tilting lock screw**
Fixes the tilting position after adjusting.

③ **Zoom lock lever**
Fixes the zoom position after adjusting.

④ **Panning table**
Adjusts the panning angle of the camera.

⑤ **Azimuth adjuster**
Adjusts the azimuth angle to obtain a level image.

⑥ **Pan lock screw**
Fixes the panning position after adjusting.

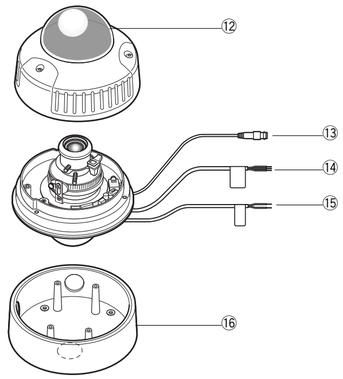
⑦ **Heater power connector**
Supplies power to the optional heater unit when it is built in the camera. Connect here a harness sticking out from the heater unit.

⑧ **Synchronization Mode Selector**
Specifies a source for synchronization.
INT: Internal 2:1 interlace.
LL: Line-lock mode driven by 24 V AC.
The default setting is INT.
Note: Do not set the switch to LL (Line-Lock) position when supplying 12 V DC to avoid synchronization error.

⑨ **Back Light Compensation Selector**
ON: Compensates the background if it is brighter than the object.
OFF: Does not compensate.
The default setting is OFF.

⑩ **Aperture Level Selector**
SHARP: Sharpens the image outline.
SOFT: Softens the image outline.
The default setting is SHARP.

⑪ **Video jack (3.5-diam. mini jack)**
For connecting an LCD monitor to adjust the camera images. Use an L-type plug to save space.



⑫ **Dome cover**

⑬ **Video output cable with BNC connector**
Connects with the video connector of the monitor.

⑭ **Camera power cable**
Supplies 24 V AC or 12 V DC from an external power source.

⑮ **Heater power cable**
Supplies 24 V AC from an external power source to an optional heater.

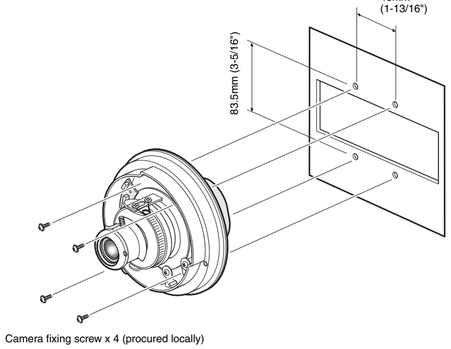
⑯ **Camera mounting bracket**
Only WV-CW244S (surface mount type) is supplied with a mounting bracket for ceiling installation.

INSTALLATION

■ Installation Plans & Preparations

● WV-CW244F

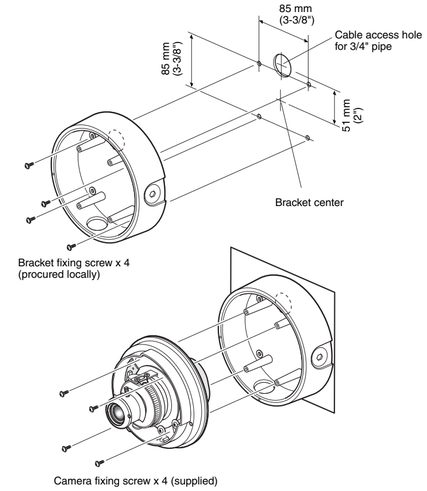
"F" stands for flash mounting. This model can be mounted on a two-gang junction box (4" x 4") pre-installed in the wall or ceiling.



1. Space
   Prepare a space larger than ø160 mm.
2. Junction box
   Procure and install a junction box that meets the dimensions in the figure.
3. Camera Fixing Screws
   Procure four screws (M4) suitable for the junction box.
4. Cable route
   Cables will go behind the junction box.
5. Waterproof Process
   When necessary, apply waterproof process to the camera and relevant portions.
   Be sure to apply silicone rubber to the camera fixing screws in case of outdoor installation.

● WV-CW244S

"S" stands for surface mounting. This model can be installed on the surface of the wall or ceiling using the supplied bracket.

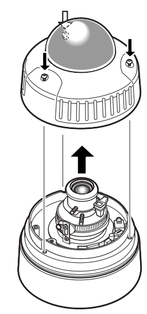


1. Space
   Prepare a space larger than ø160 mm.
2. Bracket Fixing Screws
   To fix the bracket, procure four M4 screws suitable for the surface and structure of the wall/ceiling.
3. Camera Fixing Screws
   Four screws are supplied as standard accessories.
4. Cable route
   - When routing cables through the wall/ceiling, drill a hole as shown in the figure.
   - When routing cables sideway, open the sideway cable exit unscrewing the lid by use of a hexagon wrench. Screw the detached lid to the cable access hole on the bottom of the bracket.
5. Waterproof Process
   When necessary, apply waterproof process to the camera and relevant portions.
   If you use camera fixing screws that are locally procured, be sure to apply silicone rubber to the screws.

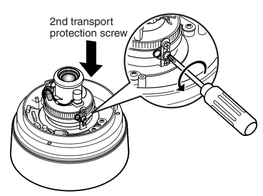
■ Mounting the Camera

● Disassembly of the camera

1. Remove the dome cover by loosening three tamper-proof screws using the supplied bit.

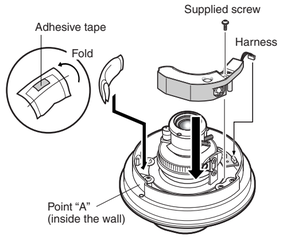


2. Remove the two red-colored screws provided for transport protection using a Philips screwdriver.



● Heater unit installation

See OPTIONAL HEATER UNIT for details.



● Mounting the camera

1. Fix the camera to the installation surface.
   WV-CW244F
   - Fix the camera on the junction box using four screws (locally procured).

   WV-CW244S
   - Fix the supplied bracket on the wall/ceiling using four screws (locally procured).
   - Fix the camera on the bracket using four screws (supplied).
2. Perform connections referring to ■ **Connections**.
3. Reinstall the camera to the bracket or junction box referring to step 1 above.
4. Adjust the image referring to ■ **Image Adjustment**.
5. Apply waterproof means referring to ● **Waterproof Process**.

■ Connections

● Video Output Connection

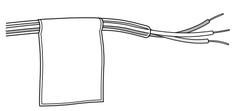
Connect the video output connector to the monitor or other system device with the procured coaxial cable. The maximum extensible length is shown in the table.

Type of coaxial cable		RG-59/U (3C-2V)	RG-6/U (5C-2V)	RG-11/U (7C-2V)	RG-15/U (10C-2V)
Recommended maximum cable length	(m)	250	500	600	800
	(ft)	825	1 650	1 980	2 640

● Power Connection

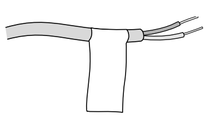
• Wire Colors & Functions

Camera power cable



Wire Color	24 V AC	12 V DC
Black	24 V AC (L)	Positive
White	24 V AC (N)	Negative
Green/Yellow	Ground	Not Used

Heater power cable



Wire Color	24 V AC
Red	24 V AC (L)
White	24 V AC (N)

Caution:

- Be sure to connect the GND (grounding) lead of the camera and grounding terminal of the power supply when using a 24 V AC power source.

• Cable Length and Wire Gauge

24 V AC

The recommended cable length and thickness are shown in the table for reference. The voltage supplied to the power terminals of the camera should be within 19.5 V AC and 28 V AC.

Recommended wire gauge for 24 V AC line.

Copper wire size (AWG)		#24 (0.22 mm²)	#22 (0.33 mm²)	#20 (0.52 mm²)	#18 (0.83 mm²)
Length of Cable (Approx.)	(m)	95	150	255	425
	(ft)	314	495	842	1 403

12 V DC

Use the formula below to calculate the power cable and power supply. The voltage supplied to the power terminals of the camera should be within 10.5 V DC and 16 V DC.

Resistance of copper wire [at 20 °C (68 °F)]

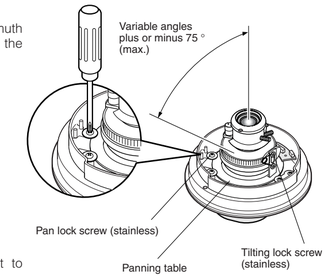
Copper wire size (AWG)	#24 (0.22 mm²)	#22 (0.33 mm²)	#20 (0.52 mm²)	#18 (0.83 mm²)
Resistance Ω/m	0.078	0.050	0.03	0.018
Resistance Ω/ft	0.026	0.017	0.010	0.006

$10.5\ V\ DC \leq V_A - 2(R \times I \times L) \leq 16\ V\ DC$

L : Cable length (m) (ft)
R : Resistance of copper wire (Ω/m) (Ω/ft)
V_A : DC output voltage of power supply unit
I : DC current consumption (A). See specifications.

■ Image Adjustment

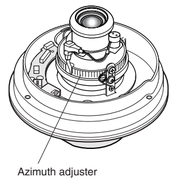
You can manually adjust the pan/tilt/azimuth angles, focus, and zoom while observing the connected monitor.



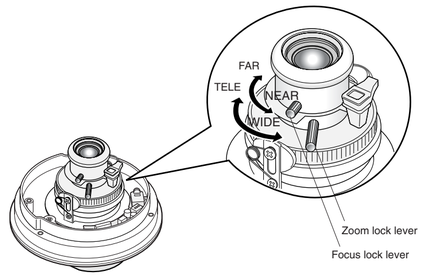
Notes:

- Do not hold the camera by lens unit to adjust panning, tilting, or azimuth.
- The video output to the BNC will be interrupted while an LCD monitor is connected to the video jack.

1. Connect an LCD monitor to the video jack.
2. Pan/tilt/azimuth adjustment
   - Loosen the two screws locking the pan and tilt tables.
   - Pan and tilt the table to aim the camera at what you need to watch.
   - Turn the azimuth adjuster to obtain a level image.
   - Tighten the two screws after adjusting.



3. Zoom
   - Unlock the zoom lever.
   - Move the lever to adjust the zoom.
   - Lock the lever.

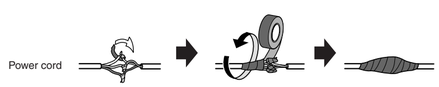


4. Focus
   - Unlock the focus lever.
   - Move the lever to adjust the focus.
   - Lock the lever.
5. Reinstalling the dome cover
   - Attach the dome cover to the camera.
   - Tighten the three tamper-proof screws.

● Waterproof Process

When necessary, apply waterproof process to protect the camera from water soak.

1. Power cord
   First, tape the individual wires, finally all of them as a whole.



2. Connector junctions
   Tape the BNC-BNC junction point.

3. Gaps and holes
   Apply such a waterproof material as silicone clay (rubber) to the gaps, screws, holes, and other relevant portions.
4. Camera Fixing Screws
   WV-CW244F
   Be sure to apply silicone rubber to the camera fixing screws in case of outdoor installation.
   WV-CW244S
   If you use camera fixing screws that are locally procured, be sure to apply silicone rubber to the screws.

SPECIFICATIONS

Pick-up device:	768 (H) x 494 (V) pixels, Interline transfer CCD
Scanning area:	4.8 (H) x 3.6 (V) mm (Equivalent to 1/3" pick-up tube)
Scanning:	525 lines/60 fields/30 frames
Horizontal:	15.734 kHz
Vertical:	59.94 Hz
Synchronization:	Internal, Line-lock (only 24 V AC), or Multiplexed vertical drive (VD2)
Video output:	1.0 V [P-P] NTSC composite 75 Ω/BNC connector
Horizontal resolution:	480 lines
Signal-to-noise ratio:	50 dB (Equivalent to AGC Off, weight On)
Minimum illumination:	2.4 lx (0.24 footcandle) (WIDE), When the optional WV-CW2C dome cover is installed. 1.0 lx (0.1 footcandle) (WIDE),
Detail:	SHARP or SOFT, selectable
White balance:	ATW
Lens Mount:	CS-mount
Lens	
Focal length:	3.8 mm - 8 mm
Maximum aperture ratio:	1:1.4 (Wide), 1:1.8 (Tele)
Angular field of view:	Horizontal: 35.6 ° - 73.6 ° Vertical: 26.6 ° - 53.4 °
Focusing range:	1.2 m - ∞ (3.9 ft - ∞)
Ambient operating temperature:	–10 °C - +50 °C (14 °F - 122 °F) –30 °C - +50 °C (–22 °F - 122 °F) (When the optional heater unit built in)
Ambient operating humidity:	Less than 90 %
Power source and	
Power consumption:	12 V DC, 265 mA (Camera) 24 V AC 60 Hz, 3.0 W (Camera) 24 V AC 60 Hz, 12.1 W (Heater unit)
Dimensions:	WV-CW244F: 133 mm (H) x 152.5 mm (D) 5-1/4" (H) x 6" (D) WV-CW244S: 136.5 mm (H) x 160 mm (D) 5-3/8" (H) x 6-5/16" (D)
Weights:	WV-CW244F: 1.2 kg (2.7 lbs.) WV-CW244S: 1.7 kg (3.8 lbs.)

Weights and dimensions indicated are approximate.
Specifications are subject to change without notice.

STANDARD ACCESSORIES

Operating Instructions (this document) ..... 1 pc.
The following are for installation.
Tamperproof screw bit ..... 1 pc.
Camera mounting bracket (supplied only to WV-CW244S) ..... 1 pc.
Camera fixing screw (with a plastic washer) ..... 4 pcs.
(supplied only to WV-CW244S)

OPTIONAL ACCESSORIES

Heater unit WV-CW3H
Clear dome cover WV-CW2C
Camera mounting bracket (for WV-CW244F) WV-Q112

OPTIONAL HEATER UNIT

■ Optional Heater Unit WV-CW3H

● Introduction

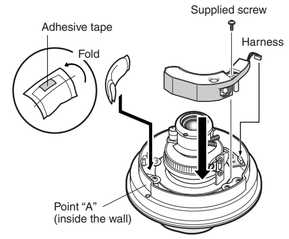
Installing this heater unit enables the camera to operate under in a low-temperature environment of –30°C (–22°F). The heater turns on automatically when the temperature inside the camera drops below +10°C (50°F) and turns off when it rises.
A small fan inside the unit will minimize condensation on the surface of the dome cover caused by changes in ambient temperature unless temperatures change too rapidly. The fan will stop when there is no possibility of condensation.

● Precautions

- This product should be installed and connected by qualified service personnel or system installers.
- Do not use the same 24 V AC power source supplying the power to the camera for the heater unit. Connect another 24 V AC power source to the heater unit. If the same power source is used, turning the heater on and off may disturb the camera images.
- When servicing, pay attention to high temperature on the surface of the unit. Disconnect the harness and wait until it cools.
- When you install the camera in a low-temperature location and start operating it, it may take time (around 30 minutes) for the inside of the camera to warm up. Cut power once then supply power again.

● Installation

1. Open the dome cover. (See Disassembling the camera.)
2. Place the heater unit in the camera and fix it with the supplied screw.
3. Insert the harness into the heater unit connector of the camera.
4. Fold the desiccant pack in half, and attach it with adhesive tape to point "A" shown in the figure.
   Note: Attach the desiccant pack so that it does not block ventilation holes or hang over the top of the wall.
5. Attach the dome cover while paying attention not to pinch the harness cable.
6. Connect the heater power cable of the camera. (See Connection.)



● Specifications

Required power:	24 V AC, 60 Hz
Power consumption:	12.1 W maximum
Dimensions:	29 mm (H) x 83 mm (W) x 89.5 mm (D) [1-1/8" (H) x 3-1/4"(W) x 3-1/2"(D)]
Weights:	45 g (0.1 lbs)

● Accessories

Fixing screw (M3 x 12) ..... 1 pc.
Desiccant pack ..... 1 pc.

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